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Trade, Labor Markets, and Migration

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Trade, migration, and labor markets

Relationship of these variables in the medium run is focus

Medium run capital flow cycles affect trade and labor market conditions

I'm interested in particular the last capital flow cycle in the EMU

Several Southern European countries with different structural problems have been involved

They are similar with respect to the current account

200 Years of Capital Flow Cycles
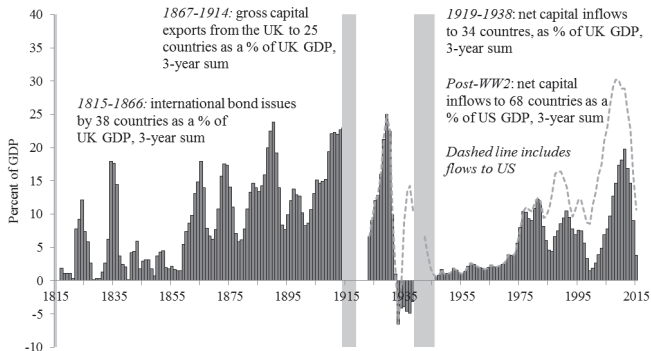
Notes: Shaded years are Napoleonic and World Wars I and II.
Sources: Reinhart et al. (2016). See also Data Appendix.

Source: Reinhart, Reinhart, and Trebesch (2016): Table 2.

The EMU and imbalances

Up to the crisis 2007/08, significant imbalances have emerged

Within the EMU, the North as group showed sizable CA surpluses, the South large deficits

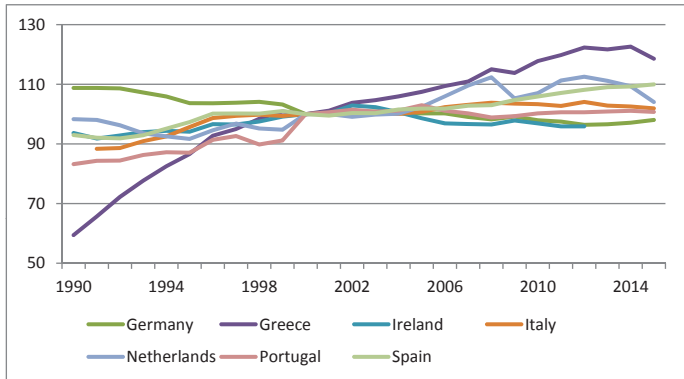We think of intra-EMU capital flows as reasons (Carstensen and Sinn (2010))

  Catching up economies with higher interest rates enjoy capital inflows

  Investments in non-tradable good sector (Housing)

  Raises GDP, future growth expectations, reduces unemployment drives prices up

  Resulting real appreciation worsens the current account

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Producer prices relative to the EMU Average

Source: OECD MEI Producer price indices

Blanchard's analysis of Portugal's problems

In 2007, Blanchard analyzed the competitiveness problems of Portugal

The main problem was the strongly negative current account balance, resulting from a real appreciation

The real appreciation results from a boom period in the 1990s with high growth expectations, significant capital inflows, convergence expectations, falling unemployment and rising wages and other compensations
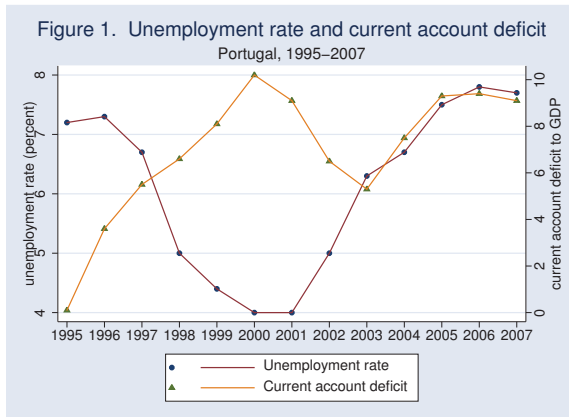
Growth and convergence expectations did not materialize, productivity improvements remained weak

Two options in order to avoid long-time unemployment:

Productivity increases

Wage restraints

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Unemployment and current account deficit

Figure 1. Unemployment rate and current account deficit
Portugal, 1995–2007

Source: OECD Economic Outlook June 2006. The numbers for 2006 and 2007 are OECD forecasts.

Two options to regain competitiveness: productivity increase or wage restraints

Blanchard (2007) starts with a wage equation

$$\Delta w = E\Delta p + E\Delta a - \beta(u - \bar{u}) \tag{1}$$

where all variables are in logs and Δ therefore the rate of change
w denotes the nominal wage, a productivity, u and $\bar{u}$ actual and natural unemployment rate

Price of tradable goods set on world market, prices of non-tradables driven by wages

Blanchard defines competitiveness z as inverse of relative unit labor costs of tradables

$$z = w^* - a_T^* - w_T + a_T \tag{2}$$

Wage restraints

If expectation equal actual values, change in competitiveness depends only on unemployment

$$\Delta z = \frac{\beta}{1-\alpha}(u - \bar{u}) \tag{3}$$

where $1 - \alpha$ is the share of tradable goods in consumption

Unemployment needed to regain competitiveness is lower

the higher the weight β put on unemployed in wage bargaining

the smaller the size of the tradable good sector

Unexpected productivity growth ν helps to regain competitiveness

$$\Delta z = \frac{\beta}{1-\alpha}(u - \bar{u}) + \frac{1}{1-\alpha}\nu \tag{4}$$

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Common elements of the crisis in Southern Europe

Growth expectations have been high throughout the early 2000s, convergence to Northern European productivity levels has been expected

High capital inflows showed the attractiveness of the economies, unemployment has been falling below natural rates

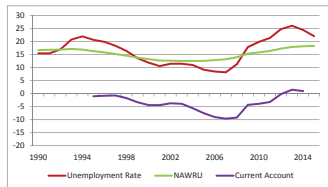With the crisis, growth expectations have been corrected, capital inflows dribbled

Housing booms stopped: no new contracts, some projects burried
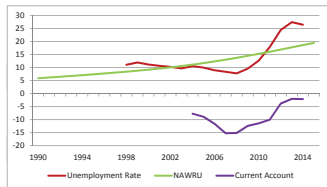
Employment in construction falls

Unemployment rises because tradable good sector cannot absorb all dismissed workers

Aggregate income and spending falls, unemployment increases

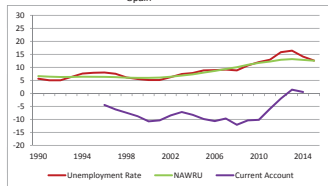# Unemployment rates and Current account balances (%), 1990-2015

Spain

Greece

Portugal
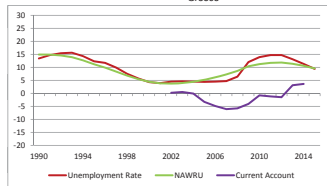
Ireland

Source: EC: Ameco, OECD MEI

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Employment Shares Spain
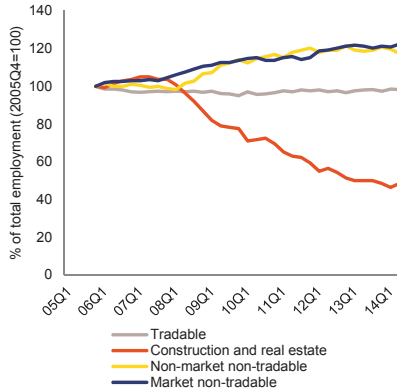
Source: European Commission

Source: European Commission (2015): Country Report Spain 2015.

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End of the construction boom and mismatch unemployment

In Blanchard's analysis, workers and job are homogeneous, sector pattern do not play an important role

Empirical labor market research has shown a particular high sector component in job-vacancy matching during the crisis

Davis, Faberman, and Haltiwanger (2012) documented a large sector component in the job filling rate and in recruiting intensities $\rightarrow$ they propose a generalized matching function to account for the differences

Sahin, Song, Topa, and Violante (2014) found mismatch unemployment to account for up to a third of actual unemployment in the U.S. after the crisis

Mismatch was determined by differences in labor market tightness among the sectors

Worker heterogeneity

Both Davis *et al.* and Sahi *et al.* assume homogenous workers

Vacancies might differ by sector or occupation but workers do not

Benchmark in Sahi *et al.* is a allocation of job seekers and vacancies that equates labor market tightness

Labor market tightness is generated by moving job seekers to different sectors/occupations

While a hypothetical central planner can do so, real reallocation takes some time

Occupational employment pattern change with retirement and new entrants

In the short run, such sector readjustments as needed, necessarily yield mismatch

Job and worker heterogeneity and discrete choice

Workers differ in their abilities and experiences with the sector

for ex-ante occupation qualifications, on-the-job-training or learning-by-doing

They might also differ in age, in personal characteristics and special experiences they have made

Differentiation among the workers is "horizontal" (not unique ranking by different employers)

Workers are employed or look for a job

Firms have different requirements on their "ideal" employee

The different positions in different firms are "horizontally" differentiated

Applications

Firms post vacancies when they arise

They make known position, required tasks, and experiences and qualifications expected

Job seekers compare the vacancies in order to decide where to apply

Every job seeker can apply only for one position in each period

Job seeker h compares wages, chances to get the job, required qualifications and experiences, and expected tasks and challenges

He makes a discrete choice among the mutually exclusive offers

Individual decisions are not predictable without more information, aggregate outcome however is predictable if we assume some structure in the unknown components

Applications

Known criteria (wage, separation probability, fit) summarize in ω

Many unknown criteria are summarized in ε, normally distributed

Probability that job seeker h applies at period t on a vacancy posted by firm k, which is active in sector i, is given by

$$
\begin{aligned}
\mathbf{P}_{hkt} &= \Pr\left[\omega_{it} + \varepsilon_{kt} = \max_{l=1...n}(\omega_{hlt} + \varepsilon_{hlt})\right], \quad i = 1...n \\
&= \Pr\left(\omega_{it}^k + \varepsilon_{hkt} > \omega_{it}^1 + \varepsilon_{h1t}...\omega_{it}^k + \varepsilon_{hkt} > \omega_{it}^n + \varepsilon_{hnt}\right) \quad k \neq l \\
&= \Pr\left(\omega_{it}^k - \omega_{it}^l + \varepsilon_{hkt} \geq \varepsilon_{hlt}\right) \\
&= \prod_l \left[F((\omega_{it}^k - \omega_{it}^l + x)\right],
\end{aligned}
$$

where n denotes the number of vacancies the job seeker has considered and x is any possible representation of the difference of the residuals $x \equiv \varepsilon_{hkt} - \varepsilon_{hlt}$.

Applications

If the unknown part x is Gumbel distributed, the probability of h to apply for k is given by

$$\mathbf{P}_{hkt} = \frac{\exp[(\omega_{it}^k - \mu_n)/\beta_n]}{\sum_l \exp[(\omega_{it}^l - \mu_n)/\beta_n]} \tag{5}$$

All firms in sector i are equally likely to receive an application from h

Firms in the sector job seeker h has worked before are more likely than firms in the other sector to receive an application

Number of applications n_{it}^k is product of number of job seekers and probability

A reservation value b of a worker which induces the job seeker not to send an application could be included

Job offers

Among the n_t^k applications that firm k receives, the firm chooses the applicant which is expected to fit best on the open position given his work experience d_i and the other information send by the applicant which can be summarized in ν_{hkt}.

A minimum requirement level u_{min} is added to the set of alternatives

The probability of firm k to hire job seeker h in period t out of all the applicants conditional on h's application is given by

$$\mathbf{P}_{kht} = \frac{\exp[(d_{it}^h - \mu_a/\beta_a)]}{\sum_m^{n_k^A} \exp[(d_{it}^m - \mu_a)/\beta_a] + \exp[u_{min}]} \tag{6}$$

Job offers

The probability *not to hire* someone is given by

$$\mathbf{P}_{kut} = \frac{\exp[u_{min}]}{\sum_m^{n_k^A} \exp[(d_{it}^m - \mu_a)/\beta_a] + \exp[u_{min}]} \tag{7}$$

The probability not to hire someone increases in the utility derived from the outside option

It falls with the number of applicants

The probability that firm k fills the vacancy is given by

$$
\begin{aligned}
\mathbf{P}_{kt} &= \frac{\exp[(d_{it}^h - \mu_a/\beta_a)]}{\sum_m^{n_k^A} \exp[(d_{it}^m - \mu_a)/\beta_a] + \exp[(u_{min} - \mu_a)/\beta_a]} n_{kit}^A \\
&+ \frac{\exp[(x_a - \mu_a/\beta_a)]}{\sum_m^{n_k^A} \exp[(d_{it}^m - \mu_a)/\beta_a] + \exp[(u_{min} - \mu_a)/\beta_a]} n_{krt}^A
\end{aligned}
$$

Labor market policy options

Hiring increases in the number of applications and by reducing the minimum requirement level

Number of applications can be increased by lowering unemployment benefits b and by increasing the perceived fit of job seeker and vacancy

That gives reasons for specialists like headhunters or employment agencies, email alert systems and search engine supported scanning of the market

Qualification and reorientation measures can improve the "fit" and lift applicants above the minimum requirement

Lowering unemployment benefits distorts application towards faster but not necessarily better matches

  Sahin et al. (2015) on UK low productivity growth puzzle

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Nominal wage restraint and productivity increases

The main adjustment is as in Blanchard (2007) to come through wage adjustment or productivity increase

Wage negotiation are sector specific, nominal wage reduction difficult to negotiate

Yet, stable nominal wages did yield improvements of competitiveness

Improving productivity and expanding the tradable good sector important
  Junker's investment initiative
  Euro depreciation

Reducing search and mobility frictions eases the readjustment process

Migration

Cross-border migration is much more costly than regional migration within a country

The worker heterogeneity approach shows why cross-border migration is so low: informational friction on both sides are much larger

$\Rightarrow$ Migration will not solve the problem

In our approach: job seeker's vacancies are partly located abroad

The choice now includes the comparison of wages, separation probabilities, fit across countries

$$\mathbf{P}_{hkjt} = \Pr\left(\omega_{ijt}^k - \omega_{ijt}^l + \varepsilon_{hkt} \geq \varepsilon_{hlt}\right) \tag{8}$$

where $j = H, F$ denotes the country

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Migration

The observable characteristics must now include migration costs,
$\omega_{iHt}^k - \omega_{iFt}^l \lesseqgtr 0$

Migration from East to West Germany has stopped been wage difference narrowed to 20%

Migration costs could be reduced by position offering firm, as to reduce labor shortage abroad

That helps the foreign country but not the adjusting country, if the labor shortage is in the tradable good sector

   One channel of regaining competitiveness, foreign wage increase, is reduced

   Potential promising candidates apply abroad, expansion of tradable good sector more difficult

Structural change to higher production of tradable goods is not supported

Discussion

Mundell found labor mobility important to adjust to asymmetric shocks
in a currency union

We can even make sure that it does not hurt

Two reasons for the difference:

1) We start with large imbalances between the countries/regions

   The imbalance has created within-country which needs to be
   corrected

2) Labor is not homogenous

In Ireland migration reacts strongly to economic conditions in both
directions. It might therefore be a great case study for an empirical
assessment

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Concluding remarks

We look at trade, migration, and labor markets in a currency union in the medium run

Macroeconomic conditions are characterized by boom and bust cycles rather than by a long-run steady state

External imbalances create internal imbalances, both must be corrected

Net-exports of deficit countries need to increase which requires improvement of price competitiveness

Wage restraints and productivity improvement are the main tasks, labor market reforms can help to achieve them and ease adjustment between sectors

Role of migration is rather limited in supporting the adjustment process